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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,558	08/30/2001	Mamoru Shimoda	2936-0134P	6110

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EXAMINER	
VAN HANDEL, MICHAEL P	

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/941,558	SHIMODA, MAMORU	
	Examiner	Art Unit	
	Michael Van Handel	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is responsive to an Amendment filed 5/26/2006. Claims **1-10** are pending. Claims **1, 3, 8** are amended. The examiner hereby withdraws the objections to claims **4** and **6** in light of the amendment.

Response to Arguments

1. Applicant's arguments filed 5/26/2006 with respect to claims **1**, **3**, and **8** have been fully considered, but they are not persuasive.

Referring to claim **8**, the applicant argues that Saito does not disclose controlling an output signal level of a local signal generator based on a selected frequency. The examiner respectfully disagrees. Saito discloses a voltage-controlled oscillator (VCO) for creating a local oscillation signal in synchronism with a signal input from a frequency selection circuit 11 (col. 1, l. 14-16). This meets the limitation "selecting a frequency for receiving a radio-frequency signal" as currently claimed. Saito describes a situation in radio-frequency reception in which an optimum amplitude level of a local oscillation signal lies within a certain range (col. 2, l. 6-8 & Fig. 4). Saito further illustrates the relation between the frequency of a high-frequency input signal and the conversion gain of a mixer when different amplitude levels of a local oscillation signal is used as a parameter and explains the necessity of setting the amplitude level of a local oscillation signal higher as the frequency of a high-frequency input signal is set higher (col. 2, l. 9-15 & Fig. 5). In order to solve this problem, Saito discloses detecting an intermediate

frequency output at a detector 6, and controlling the amplitude level of the local oscillation signal accordingly (col. 7, l. 25-46 & Fig. 6). Since the intermediate frequency output at detector 6 is dependent on the signal output by the frequency selection circuit 11, there is also a relationship between the output of the frequency selection circuit 11 and the adjustment of the local oscillation signal's amplitude. This meets the limitation "controlling an output signal level of the local signal generator based on the selected frequency" as currently claimed. The examiner acknowledges that the applicant discloses a controller, which controls both a level switcher circuit and a frequency divider; however, the examiner notes that the claim as currently written does not distinguish any differences between the applicant and Saito. The examiner further acknowledges the applicant's argument that changing the frequency selected for reception by Saito would not appear to affect the amplitude level correction circuit in a scenario where no radio-frequency signal is being received. Saito does not discuss the operation of the receiver (Fig. 6) under such a scenario; however, the examiner notes that such a situation is not recited in the claim as currently written. Therefore, the examiner maintains that the operation of the receiver (Fig. 6) of Saito meets the limitations of claim 8 as currently written.

Referring to claim **1**, the applicant argues that the combination of Saito and Yonekura et al. does not teach a level switcher for switching an output level of a frequency multiplier circuit. The examiner respectfully disagrees. Saito discloses a detector 6 that detects an intermediate frequency output level and controls the amplitude level of a local oscillation signal accordingly. The examiner notes that the amplitude level of the local oscillation signal is adjusted by an amplitude level correction circuit 12 connected to the output terminal of a buffer amplifier 8 (col. 5, l. 19-24, 38-40; col. 7, l. 25-46; & Fig. 7). Yonekura et al. discloses generating a voltage

controlled oscillation signal, amplifying the oscillation signal into an amplifier output signal with a buffer amplifier 47, and delivering the amplifier output signal to a frequency multiplier 37, which frequency multiplies the oscillation signal by a multiplication factor (col. 4, l. 49-57, 66-67; col. 5, l. 1-6; & Figs. 1, 2A). Yonekura et al. further describes an undesirable amount of power consumption that results from generating a high frequency signal with a low multiplication factor (col. 1, l. 60-67 & col. 2, l. 1-6). Thus, the examiner maintains that Yonekura et al. successfully remedies the deficiencies of Saito, and that it further be obvious to modify Saito to include a frequency multiplier in view of the desirability to reduce the power consumption of a radio receiver as discussed by Yonekura et al. Regarding the applicant's argument that the combination of Saito and Yonekura et al. does not teach controlling a frequency multiplier circuit, the examiner notes that the claim as currently written does not recite such a limitation. Therefore, the examiner maintains that the combination of Saito and Yonekura et al. teaches the limitation of "a level switcher for switching an output signal level of the frequency multiplier circuit" for the above-stated reasons.

Referring to claim **3**, the applicant argues that the detector 6 of Saito does not produce a signal controlling a phase-locked loop by using a signal corresponding to the control signal that controls a level switcher. The examiner respectfully disagrees. Saito discloses outputting an amplitude adjusted oscillation signal to a prescaler buffer amplifier 9 and further to a phase comparator 10 for generating the error voltage signal to adjust the VCO 7)(col. 5, l. 10-14 & Fig. 6). This meets the limitation "wherein the local signal generator includes a phase-locked loop circuit for controlling an oscillation frequency of the voltage-controlled oscillator, and the controller controls the voltage-controlled oscillator through the phase-locked loop circuit by

using a control signal, and also controls the level switcher by using another control signal corresponding to the control signal" as currently claimed. Thus, the applicant's arguments are moot in view of the fact that both Saito and Yonekura et al. disclose the limitation as currently claimed.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim **8** is rejected under 35 U.S.C. 102(e) as being anticipated by Saito.

Referring to claim **8**, Saito discloses a method of controlling a radio-frequency receiver, comprising the steps of:

- selecting a frequency for receiving a radio-frequency signal (col. 5, l. 14-16 & Fig. 6);
- generating a local signal using a local signal generator (col. 5, l. 10-24);
- providing a mixer for mixing a received radio-frequency signal with the local signal to convert the radio-frequency signal into an intermediate-frequency signal or baseband signal (col. 5, l. 25-37); and
- controlling an output signal level of the local signal generator based on the selected frequency (col. 6, l. 38-41; col. 7, l. 25-46; & Fig. 7).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims **1-4**, **6**, **7**, **9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito in view of Yonekura et al.

Referring to claims **1** and **2**, Saito discloses a radio-frequency receiver, comprising:

- a mixer 4 for mixing a received radio-frequency signal with a local signal to convert the radio-frequency signal into an intermediate-frequency signal or baseband signal (col. 5, l. 30-34 & Fig. 6);
- a local signal generator 15 (col. 5, l. 10-24);
- a level switcher 12 for switching an output signal level of the local signal generator 15 (col. 5, l. 19-24 & Fig. 7); and
- a controller 6 for controlling the level switcher 12 according to a frequency of the received signal (the examiner notes that the level of the detected output signal is dependent on the frequency of the received signal)(col. 2, l. 55-60; col. 6, l. 44-50; & Fig. 5).

Saito does not disclose that the local signal generator include a frequency multiplier circuit. Yonekura et al. discloses a frequency multiplier circuit 37 for multiplying a frequency of an output signal of a voltage-controlled oscillator (col. 4, l. 66-67 & col. 5, l. 1-6). It would have

been obvious to one of ordinary skill in the art at the time that the invention was made to modify Saito to include a frequency multiplier circuit for multiplying a frequency of an output signal of a local signal generator, such as that taught by Yonekura et al. in order to reduce the power consumption of a receiver (Yonekura et al. col. 1, l. 60-67).

Referring to claim **3**, Saito discloses a radio-frequency receiver, comprising:

- a mixer 4 for mixing a received radio-frequency signal with a local signal to convert the radio-frequency signal into an intermediate-frequency signal or baseband signal (col. 5, l. 30-34 & Fig. 6);
- a local signal generator 15 (col. 5, l. 10-24);
- a level switcher 12 for switching an output signal level of the local signal generator 15 (col. 5, l. 19-24 & Fig. 7); and
- a controller 6 for controlling the level switcher 12 according to a frequency of the received signal (the examiner notes that the level of the detected output signal is dependent on the frequency of the received signal)(col. 2, l. 55-60; col. 6, l. 44-50; & Fig. 5);
- wherein the local signal generator comprises a voltage-controlled oscillator 7 (Fig. 6); and
- wherein the local signal generator includes a phase-locked loop circuit for controlling an oscillation frequency of the voltage-controlled oscillator (col. 5, l. 10-24), and the controller controls the voltage-controlled oscillator through the phase-locked loop circuit by using a control signal (the examiner notes that the amplified oscillation signal is output to a prescaler buffer amplifier 9 and then to a phase comparator

circuit 10, which generates the error voltage signal to adjust the VCO 7)(col. 5, l. 10-14 & Fig. 6), and also controls the level switcher by using another control signal corresponding to the control signal ((the examiner notes that the level of the detected output signal is dependent on the frequency of the received signal)(col. 2, l. 55-60; col. 6, l. 44-50; & Figs. 5, 6).

Saito does not disclose that the local signal generator comprises a frequency multiplier for multiplying a frequency of an output signal of a voltage-controlled oscillator. Yonekura et al. discloses a frequency multiplier circuit 37 for multiplying a frequency of an output signal of a voltage-controlled oscillator (col. 4, l. 66-67 & col. 5, l. 1-6). It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify Saito to include a frequency multiplier circuit for multiplying a frequency of an output signal of a local signal generator, such as that taught by Yonekura et al. in order to reduce the power consumption of a receiver (Yonekura et al. col. 1, l. 60-67).

Referring to claim **4**, the combination of Saito and Yonekura et al. teaches a radio-frequency receiver as claimed in claim 1, wherein the level switcher comprises a regulator and a switch for varying an output voltage of the regulator, and varies a gain of the frequency multiplier circuit by using the output voltage of the regulator (the examiner notes that the detector controls the ON and OFF states of the transistors)(Saito col. 6, l. 44-50).

Referring to claim **6**, Saito discloses a radio-frequency receiver as claimed in claim 1. Saito does not disclose that the local signal generator comprises a plurality of VCOs and a VCO switcher for switching among the VCOs, so that one of the VCOs is selected and connected to the frequency multiplier circuit at a time. Yonekura et al. discloses selecting between two VCOs

53, 55 with a selector 63 (col. 7, l. 18-40). It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the PLL circuit of Saito to include selecting between two VCOs, such as that taught by Yonekura et al. in order to reduce power consumption (col. 1, l. 60-67 & col. 2, l. 1-6).

Referring to claim **7**, Saito discloses a radio-frequency receiver as claimed in claim 6. Saito further discloses a detector 6 that controls the amplitude level of a local oscillation signal (col. 7, l. 25-45). Saito does not disclose a controller that controls both a level switcher and a VCO switcher according to a frequency of a received signal. Yonekura et al. discloses a control circuit 79 that receives a signal from a detector 77 and produces a selector control signal for selecting between two VCOs (col. 6, l. 33-35; col. 7, l. 18-40; & Fig. 2B). It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify Saito to include controlling a VCO switcher in response to a detected signal, such as that taught by Yonekura et al. in order to reduce power consumption (col. 1, l. 60-67 & col. 2, l. 1-6).

8. Claim **5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Saito in view Yonekura et al. and further in view of Pugel.

Referring to claim **5**, the combination of Saito and Yonekura et al. teaches a radio-frequency receiver as claimed in claim 1. The combination of Saito and Yonekura et al. does not teach that the radio-frequency receiver is for receiving digital satellite broadcast. Pugel discloses a digital satellite video signal receiver (col. 5, l. 33-41). It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the combination of Saito and Yonekura et al. to receive digital satellite video signals, such as that taught by Pugel in

order to increase the amount of information that can be transmitted to the receiver and increase the number of users that can easily receive the information.

9. Claims **9**, **10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito in view of Yoshisato.

Referring to claims **9** and **10**, Saito discloses the method of claim 8, wherein the step of generating a local signal using a local signal generator comprises the step of generating a voltage controlled oscillator signal using a voltage controlled oscillator. Saito does not disclose a step of multiplying the voltage controlled oscillator signal by a multiplier. Yoshisato discloses a multiplier 15 for doubling the frequency of a VCO (col. 5, l. 30-31). It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify Saito to include a multiplier for doubling the frequency of a VCO, such as that taught by Yoshisato in order to reduce the power consumption of the receiver.

Conclusion

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

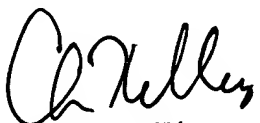
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Van Handel whose telephone number is 571.272.5968. The examiner can normally be reached on Monday-Friday, 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Grant can be reached on 571.272.7294. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Van Handel
Examiner
Art Unit 2623

MVH



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